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Granger-causality in peripheral EMU public debt markets: A dynamic approach

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ABSTRACT

Our research aims to analyze the possible existence of Granger-causal relationships in the behavior of public debt issued by peripheral member countries of the European Economic and Monetary Union (EMU), with special emphasis on the recent episodes of crisis triggered in the eurozone sovereign debt markets since 2009. With this goal in mind, we make use of a database of daily frequency of yields on 10-year government bonds issued by five EMU countries (Greece, Ireland, Italy, Portugal and Spain), covering the entire history of the EMU from its inception on 1 January 1999 until 31 December 2010. In the first step, we explore the pair-wise Granger-causal relationship between yields, both for the whole sample and for changing subsamples of the data, in order to capture the possible time-varying causal relationship. This approach allows us to detect episodes of significant increase in Granger-causality between yields on bonds issued by different countries. In the second step, we study the determinants of these episodes, analyzing the role played by different factors, paying special attention to instruments that capture the total national debt (domestic and foreign) in each country.

1. Introduction

After 10 years of stability, the financial and economic crisis that followed the US subprime crisis and Lehman Brothers collapse highlighted the imbalances within the European Economic and Monetary Union (EMU) countries. These imbalances had probably been undervalued during the stability period when markets seemed to underestimate the possibility that governments might default. Nevertheless, from August 2007 onwards, in parallel with the rise in global financial instability that led to a "flight-to-quality", yield spreads of euro area issues with respect to Germany spiraled (see Fig. 1). Moreover, since 2010, Greece has been bailed out twice and the Republic of Ireland and Portugal also needed bailouts to stay afloat. These events brought to light the fact that the origin of sovereign debt crises in Europe could even go beyond the imbalances in public finances.

Indeed, the main causes of the debt crises in Europe vary according to the country and reflect an important interconnection between public and private debt. In Ireland, the crisis was mainly due to the private sector, particularly a domestic housing boom which was financed by foreign borrowers who did not require a risk premium related to the probability of default (see Lane, 2011). In Spain, since absorption exceeded production, the external debt grew and the real exchange rate appreciated, implying a loss of competitiveness for the economy. Unlike previous expansions, the resort to financing was not led by the public sector but by private households and firms. In contrast to Ireland and Spain, the origin of the debt crisis in Greece and Portugal was the structural deficit in the government sector. If the crisis spreads to Italy, this structural deficit would be the possible cause. Greece and Italy's large fiscal deficit and huge public debt are the cumulative result of chronic macroeconomic imbalances[1]. However, the case of Portugal illustrates the importance of external debt[2] (specifically, that of its private sector: banks and enterprises).

Some studies have already found a strong relationship between risk premium and a wide range of vulnerability indicators that go beyond the fiscal position. The IMF (2010) and Barrios et al. (2009) present empirical evidence of the strong relationship between current account deficits and foreign debt and the behavior

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[1] As pointed out in Gómez-Puig (2006, 2008), in the past, Italy may have benefited from the fact that "size matters for liquidity" and thus for the success of a sovereign debt market since at the end of 2010 its market was the biggest in the euro area (see Table 6).

[2] The current account deficit over GDP was 9.86% in December 2010.

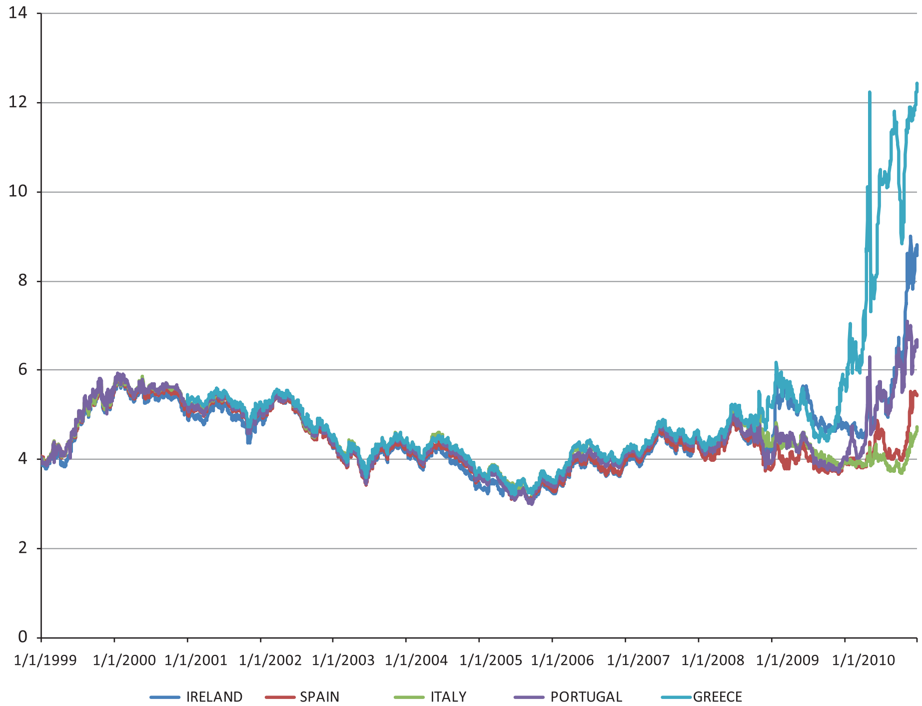

Fig. 1a. Daily 10-year sovereign yields in peripheral EMU countries: 1999–2010.

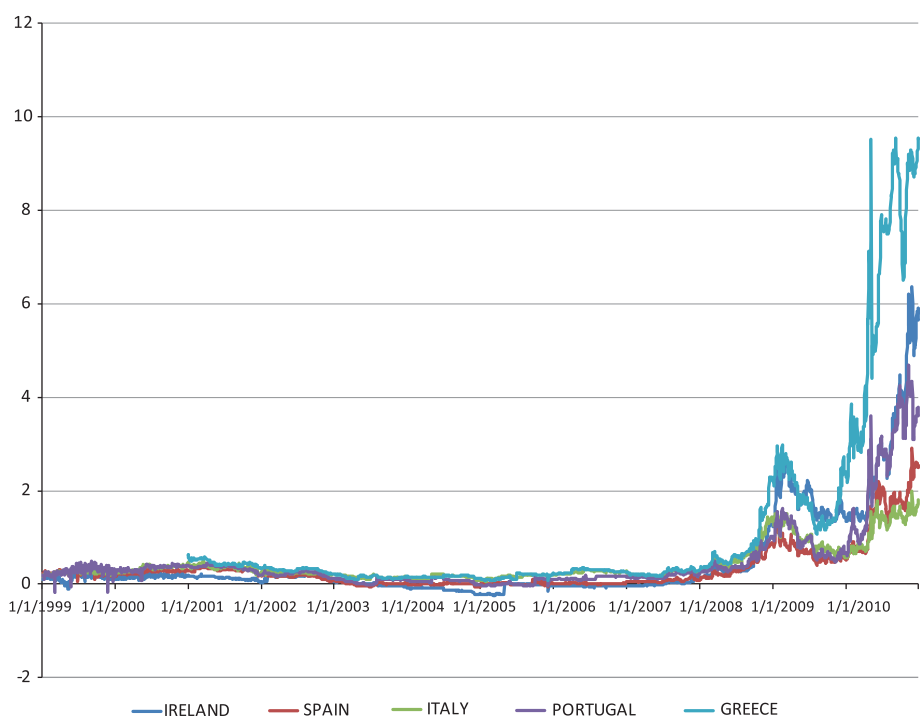

Fig. 1b. Daily 10-year sovereign yield spreads over Germany: 1999–2010.

of sovereign risk premium. Moreover, Gros (2011) contends that foreign debt is more important than public debt, and that this may have a number of implications for the ongoing eurozone crisis[3].

Other authors (Bolton and Jeanne (2011) and Allen et al. (2011), to name a few), have focused on the study of cross-border banking system linkages to the government sector. Although, cross-border banking effect on risk diversification is a key benefit, foreign capital is likely to be more mobile than domestic capital and, in a crisis situation, foreign banks may simply decide to "cut and run". In addition, in an integrated banking system, financial or sovereign crisis in a country can quickly spill over to other countries. In this context, it is important to note that the European Union and,

[3] This author points out that the importance of external debt is due to the fact that euro area governments retain full sovereignty over the taxation of their citizens, but they are bound by existing treaties and international norms and do not have a free hand in taxing non-citizens. Therefore, euro countries can always service their domestic debt, even without access to the printing press, but not their external debt.